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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,260	07/22/2003	Foot Shen Wong	02-0146	7340

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EXAMINER

PARRIES, DRU M

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/624,260

Applicant(s)

WONG ET AL.

Examiner

Dru M. Parries

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 1, line 16, the Examiner requests that the Applicant spell out the number “4” (i.e. Four), since it is at the beginning of the sentence.

Appropriate correction is required.

Claim Objections

2. Claim 15 is objected to because of the following informalities: the Examiner believes that the word “first” should be replaced with the word “second” to comply with the specification description and with claim 11. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carbolante (6,084,378) and Alfrey (2003/0103364). Carbolante teaches four power switches forming an H-bridge circuit selectively coupled to supply current to a load. He also teaches a plurality of power switch driving circuits (not shown) to control the conduction state of the power switches to selectively couple at least two power switches to a PWM signal. Carbolante

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teaches two modes of operation: a linear mode for periods of low current consumption and a PWM mode for periods of higher current consumption. He also teaches the idea of adding additional circuitry to drive the load with linear current. (Col. 1, lines 30-31; Col. 2, lines 17-23, 29-31; Col. 3, lines 40-46; Col. 14, lines 18-20, 22-29; Fig. 1). Carobolante fails to teach two current sources, the load being a thermal electrical cooler, and what the direction of current through the load defines. Alfrey teaches a linear H-Bridge circuit with for supplying current to a load, such as a thermoelectric cooler. He also teaches the direction of current through the load to define a cooling or heating mode. He also teaches the circuit comprising two current sources (Fig. 7, 7A; 17 & 19) with switches, wherein one is coupled to the load during a first period and the other is coupled during a second period ([0005] & [0044]). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement a thermoelectric cooler as the load and define the direction of current as either a cooling or heating mode because some applications of an H-Bridge circuit are used specifically for thermoelectric coolers and the heating and cooling modes are necessary for the cooler to function properly (inherent). It also would have been obvious to one of ordinary skill in the art at the time of the invention to implement two current sources in the circuit to control the magnitude of the current being supplied to the load.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carobolante (6,084,378) and Alfrey (2003/0103364) as applied to claim 7 above, and further in view of Walter (2003/0155813). Carobolante and Alfrey teach an H-Bridge circuit as described above. The two references fail to teach a filter circuit coupled between some switches and the load. Walter teaches a filter circuit (34, 36) coupled between two of four switches and the load (Fig. 1;

[0034]). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a filter circuit for attenuating harmonic distortion in the output voltage.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dru M. Parries whose telephone number is (571) 272-8542. The examiner can normally be reached on Monday -Thursday from 8:00am to 5:00pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus, can be reached on 571-272-2800 x 36. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DMP

1-4-2006


BRIAN SIRCUS
SUPERVISORY PATENT EXAMINER
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